Economics Information

Ontario

ECONOMICS OF FRESH-MARKET TOMATO, CABBAGE AND CAULIFLOWER PRODUCTION IN ONTARIO, 1982

ECONOMICS BRANCH

ONTARIO MINISTRY OF AGRICULTURE AND FOOD
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ECONOMICS INFORMATION

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SUMMARY

The production of vegetables is important to the agricultural economy of Ontario because it generated farm income of $215 million in 1981, or 12 percent of total crop income. About $100 million or 46 percent of $215 million was obtained from the sale of fresh-market vegetables. The remaining vegetables were used in Ontario's processing industry.

The market for most of Ontario's fresh vegetables fluctuates greatly because vegetables are seasonal in nature, highly perishable, and they lack a guaranteed price. In spite of many uncertainties, fresh-market vegetable production has expanded across Ontario during the last five years.

Three popular fresh-market vegetable crops are discussed in this report: tomatoes, cabbage, and cauliflower. Field-grown tomatoes for the fresh market are grown in most areas across Ontario with the exception of the North. The area devoted to producing this type of tomato has increased from 1046 hectares in 1977 to 1174 hectares in 1981. Similar increases have occurred for both fresh-market cabbage and cauliflower in all areas of the Province.

The demand for fresh tomatoes, cabbage, and cauliflower has grown because a diet-conscious population is eating more salad vegetables, and more restaurants are adding or expanding salad bars.

Tomato growers studied in southern Ontario marketed an average of 30 834 kilograms per hectare at a cost of $12,631 per hectare — made up of operating costs of $9,350 and fixed costs of $3,281 per hectare. For these growers input costs were: labor 43 percent of total costs; materials 35 percent; tractors, machines and trucks 7 percent; land use 4 percent; and management allowance 5 percent. The remaining 6 percent consisted of a number of inputs connected with marketing and general farm overhead items.

The fresh-market tomato growers studied in eastern Ontario marketed an average of 15 262 kilograms per hectare at a cost of $6,544 per hectare — made up of operating costs of $3,640 and fixed costs of $2,904 per hectare. For these growers, input costs were: labor 50 percent of total costs; materials 21 percent; tractors, machines and trucks 16 percent; land use 3 percent; management allowance 6 percent; and a number of minor inputs amounting to 4 percent of total costs.

Labor was a major cost input for tomato growers in any area. Total labor use per 100 kilograms on tomatoes marketed was 3.7 hours in southern Ontario, and 3.0 in eastern Ontario. Labor used to pick, pack, and market tomatoes amounted to 2.4 hours per 100 kilograms marketed, or 11.4 cents per kilogram in southern Ontario. For the Eastern area, 1.3 hours were required at a labor cost of 11.3 cents per kilogram.

Fresh-market cabbage growers studied in southern Ontario marketed an average of 1488 crates per hectare at a cost of $4.00 per crate consisting of $2.92 operating costs, and $1.08 fixed costs per crate.

Input costs as a percentage of total costs in cabbage production were: labor 23 percent; materials 30 percent; tractors, machines, trucks, and custom work 16 percent; land use 10 percent; marketing costs 13 percent; management allowance 7 percent; and minor inputs at 1 percent.

Fresh-market cauliflower growers studied in eastern Ontario marketed an average of 8450 heads per hectare at a cost of 50 cents per head consisting of 26 cents operating, and 24 cents fixed costs.

Input costs as a percentage of total costs in cauliflower production were: labor 57 percent; tractors, machines and trucks 14 percent; materials 13 percent; land use 5 percent; management allowance 8 percent; and a number of minor inputs at 3 percent of total costs.

INTRODUCTION

Vegetable production for both the fresh and processing markets is important to the agricultural economy of Ontario. In 1981, farm cash receipts from vegetables amounted to $215 million, or 12 percent of total income from all crops which were valued at $1,740 million. The only crops that exceeded the cash income received from vegetable sales were corn at $346 million and tobacco at $362 million. Of the $215 million, about $100 million or 46 percent was obtained from the sale of fresh-market vegetables.

The demand for fresh vegetables has grown recently. This demand has been created by a growing urban population and changes in eating habits of diet-conscious consumers. Many restaurants, ranging from expensive to fast-food outlets, are offering salad bars and this expansion has in turn increased the demand for salad vegetables.

The farm price for most fresh-market vegetables is not guaranteed and most vegetables are highly perishable. Because of these factors, growers are forced to sell their produce on a market which fluctuates from day to day according to supply and demand.

Over the years, competition — or lack of it — from imported vegetables has caused prices to move rapidly up and down. In spite of these and other uncertainties, the production of fresh-market vegetables has continued to grow in Ontario.

PURPOSE

The last study on tomatoes, cabbage, and cauliflower was done nearly 10 years ago. Costs and production practices have changed significantly since then, and overall production in Ontario has increased. The Economics Branch decided to conduct a study of these three crops for 1982. The purposes of the study were:

1. To determine production costs and returns;
2. To obtain information on input use and production practices; and
3. To provide data for preparing farm budgets for use in farm planning.

SAMPLE AND PROCEDURES

A sample of growers was selected in major vegetable-producing regions in Ontario. Producers were chosen based on their willingness to cooperate and their ability to provide information on representative cost records. These growers were visited by personnel of the Economics Branch, and the Kemptville College of Agricultural Technology, who assisted growers in recording information on inputs used, costs and practices followed in growing, harvesting, and marketing their crops of tomatoes, cabbage, and cauliflower for fresh-market sales. The crop, region, and number of growers is summarized as follows:

Crop	*Ontario region*	*Number*
Tomatoes	Southern	5
Tomatoes	Eastern	7
Cabbage	Southern	8
Cauliflower	Eastern	5

LABOR

Unpaid family labor consisted mainly of labor by the owner or operator and spouse and was calculated at $6.25 per hour throughout the production year. In most cases, other family labor was recorded at the hired labor rate paid in the area for the operation performed.

All costs for hired labor were recorded at the amounts actually paid. The hired labor costs, unless otherwise indicated, allowed for labor benefits such as workmen's compensation, unemployment insurance, Canada Pension Plan, transportation, housing, and any meals or other benefits provided.

An allowance for management was included in the cost of producing the fresh-market vegetables studied — calculated at a rate of 5 percent of the gross returns obtained by each cooperating grower.

MATERIALS

This category comprised the actual costs to the grower for all materials — seed, plants, fertilizer, sprays, containers, and others. Most growers provided the costs for materials, operations performed, and use of greenhouse facilities for growing their own plants. Other growers either purchased plants or provided a comparative cost for purchased plants. In cases where manure was purchased the full cost of the manure was not charged to the present crop.

TRACTORS AND MACHINES

An hourly rate was calculated for each tractor, machine, and truck used on the vegetable crops on the basis of the age, purchase price, and total annual use. Fixed tractor, machine, and truck costs include an allowance for interest on investment, depreciation, housing, and insurance. Operating tractor, machine, and truck costs include an allowance for repairs and maintenance, grease, oil, and fuel where applicable. The cost for hired custom work services and machine rentals was recorded as paid.

LAND USE

Most of the fresh-market vegetable crops studied were grown on fertile, well-drained soils by specialized growers. In a study of the economics of crop production, a difficult and controversial task is to determine an annual cost for the use of land.[1]

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[1] Gordon Framst, *A Method for Determining Enterprise Land Costs* (Toronto: Economics Branch, Ontario Ministry of Agriculture and Food, 1981).

During the past two decades, purchasers of farmland have generally been willing to pay considerably more for land than can be justified by capitalizing the net return from agricultural production. The most important reason is that land has been considered to be a good hedge against inflation. Purchasers believe that the speculative aspect of owning land offers benefits over and above those received from crop production. For this reason it would be incorrect to charge the crop grown in a particular year with the full interest cost of carrying the land investment.

Land values vary from area to area for many reasons, including proximity to populated centers, productivity of soils natural drainage, and other reasons. In this study, interest on land investment is calculated as follows:

1. Land was valued on the basis of recent sales of bare land in the immediate area of cooperating farms; and

2. The interest rate applied was the current lending rate — Farm Credit Corporation average rate for 1982 of 16.22 percent — discounted for the rate of inflation as outlined in the Framst report, resulting in a rate of 6.5 percent.

Land taxes were recorded and adjusted for any homes or buildings not contributing to the farm operation and for the Ontario Farm Tax rebate.

The actual rent paid was recorded for the rental of land, and/or buildings used in producing any of the three vegetable crops.

INTEREST ON
OPERATING CAPITAL

Operating capital is needed to purchase plant-growing supplies, fertilizer, sprays, hired labor, and other operating supplies and services. Operating capital is required early in the spring and continues throughout the growing period until the grower is able to market all or part of the crop.

No attempt was made in this study to find out the actual interest rate charged by chartered banks and other lending institutions for the capital that the growers borrowed during the year to pay for the costs of fresh-market vegetable production. That would prove very difficult as some growers borrow all of their operating capital, both for vegetable production and for other purposes. Long-established growers on the other hand, borrow part of their operating cash needs and obtain the rest from their own cash reserves.

In order to treat all study cooperators the same, it was decided to calculate interest on operating capital at 1.5 percent over the 1982 average Canadian prime rate of 15.93 percent. Therefore, the operating interest rate used was 17.43 percent for all materials, hired labor, custom services, and machine rentals for:

1. Greenhouse or plant growing operations for four months;

2. Seedbed and planting operations for three months; and

3. Summer operations of weed controlling measures, irrigating, pesticide sprays, and others for one month.

Table 1.—Fresh-Market Tomato Production, Ontario, 1977-1982

Year	Southern Ontario			Eastern Ontario			Ontario		
	Area	Marketed production	Total value	Area	Marketed production	Total value	Area	Marketed production	Total value
	ha	'000 kg	$'000	ha	'000 kg	$'000	ha	'000 kg	$'000
1982	686	17 897	6,582.1	64	946	718.2	1 295	27 789	10,775.2
1981	632	13 003	4,987.3	70	642	340.8	1 174	21 088	8,453.2
1980	563	10 379	3,582.5	71	941	418.6	1 144	19 880	7,148.7
1979	654	13 814	4,388.2	59	780	355.0	1 121	21 516	7,386.2
1978	663	15 992	6,054.3	50	728	285.4	1 074	22 817	8,522.6
1977	655	18 338	7,406.5	53	965	359.7	1 046	25 338	9,841.1
1977-81	633	14 305	5,283.7	61	811	351.9	1 112	22 128	8,270.3

Source: *Seasonal Fruit & Vegetable Annual Summary* (Toronto: Ontario Ministry of Agriculture and Food).

OTHER COSTS

Other overhead costs included an allowance for use of greenhouses, cold frames, packing sheds, and any specialized equipment used in greenhouse or packing shed operations.

Marketing costs included an allocation for rental of a market stall, advertising, allowance for storage if applicable, storage bin rentals, costs required in servicing pick-your-own operations, and where applicable fees to various associations.

General farm costs are costs which are not applicable to any one crop in particular. These can include accounting fees, drainage maintenance, fencing, and the farm share of such items as telephone, electricity, and transportation. For most cooperators on this study, no allocations were made for these unallocated costs. A reasonable estimate of these costs would be in a range of $10 to $15 per hectare.

Yields and returns were provided by most growers. Because of differing methods and container sizes used in marketing vegetables in Ontario, some conversions had to be made. For example, all tomato yields were converted to kilograms, while cauliflower yields are reported in heads, and cabbage yields are reported in crates.

Returns include all returns received by growers for all produce marketed. Growers who did not report their returns were assigned an average price for that vegetable as reported in their production area.

TOMATOES FOR THE FRESH MARKET

Field-grown tomatoes for the fresh market are produced in most counties and regional municipalities of Ontario to some extent. Due to an early growing season, fertile soils and a favorable climate, almost 57 percent of the 1112 hectares for the period 1977-81 were grown in southern Ontario (Table 1).

Eastern Ontario, also studied in this report, has enjoyed a gradual increase in area from 53 hectares in 1977 to 70 hectares in 1981 (Table 1). This increase was brought about by factors such as a growing demand for local produce, renewed emphasis on extension information by horticulturists serving the area, and an increase in pick-your-own operations.

The degree of success attained in producing early tomatoes varies widely between years and between farms within an area. On account of the specific production requirements of the crop, its perishability, and the daily fluctuations in prices, the fresh-market tomato grower is faced with many problems.

CABBAGE AND CAULIFLOWER FOR THE FRESH MARKET

Sales of cabbage and cauliflower for the fresh market together returned almost $14 million to Ontario growers in 1981. Cabbage production

Table 2.—Fresh-Market Cabbage Production, Southern Ontario, 1977-1982

Year	Southern Ontario			Ontario		
	Area	Marketed production	Total value	Area	Marketed production	Total value
	ha	'000 kg	$'000	ha	'000 kg	$'000
1982	811	40 209	4,616.3	1 503	62 632	7,863.5
1981	806	32 279	4,600.3	1 413	54 070	7,909.5
1980	629	23 800	3,852.9	1 152	42 275	7,159.0
1979	645	25 991	2,832.3	1 156	44 297	5,041.5
1978	665	28 279	3,135.4	1 380	55 354	6,822.8
1977	539	24 987	2,207.1	1 136	45 644	4,977.0
1977-81	657	27 067	3,325.6	1 248	48 328	6,382.0

Source: *Seasonal Fruit & Vegetable Annual Summary* (Toronto: Ontario Ministry of Agriculture and Food).

has varied from a low of 1136 hectares in 1977 to a high of 1503 hectares in 1982 (Table 2). The production trend for cauliflower across Ontario for the 5-year period 1977-81 shows a doubling in area from 522 hectares in 1977 to 1069 hectares in 1980 (Table 3).

Cabbage and cauliflower are grown in most of the counties and regional municipalities south of a line from Goderich near Lake Huron to Ottawa. Early cabbage and cauliflower production is concentrated in the Essex, Hamilton-Wentworth, and Halton areas. Mid- and late-season fresh-market cabbage and cauliflower are grown in many areas with large areas in Haldimand-Norfolk, York (Bradford Marsh), Hamilton-Wentworth, and Halton areas.

FRESH-MARKET TOMATO COSTS AND RETURNS, SOUTHERN AND EASTERN ONTARIO

Fresh-market tomato production occurs from Essex county in the southwest to the Ottawa area in the East. Each area produces and markets tomatoes to meet specific market demands. Therefore, it is not appropriate to make comparisons between such widely distant production areas as shown in this study.

For example, the large concentration of growers in the south Essex area—632 hectares in 1981 or 54 percent of Ontario's acreage—aim for the early markets across Ontario, and they continue their production well into the summer months. Almost all of the production must be transported out of the area to markets throughout Ontario and adjacent areas of Canada. In contrast, the eastern Ontario production comes to market later in the summer and is entirely marketed through local outlets such as the Ottawa city market, local produce dealers, area stores, roadside markets, and pick-your-own operations.

Table 3.—Fresh-Market Cauliflower Production, Eastern Ontario, 1977-1982

Year	Eastern Ontario			Ontario		
	Area	Marketed production	Total value	Area	Marketed production	Total value
	ha	'000 kg	$'000	ha	'000 kg	$'000
1982	35	571	260.9	1 048	26 137	8,073.0
1981	27	385	140.8	986	18 806	5,942.4
1980	38	656	204.3	1 069	23 253	7,203.5
1979	23	387	171.3	788	21 063	5,549.9
1978	15	237	83.2	618	16 137	4,381.9
1977	23	353	109.3	522	10 496	2,734.7
1977-81	25	403	141.8	797	17 951	5,162.5

Source: *Seasonal Fruit & Vegetable Annual Summary* (Toronto: Ontario Ministry of Agriculture and Food).

Because of the marketing system, eastern Ontario growers are not faced with the added costs involved in marketing their tomatoes, such as the cost of new containers, extra hired help for packing and other costs (Table 6).

YIELDS AND RETURNS

The growers of fresh-market tomatoes are faced with many problems in growing and marketing the crop to receive a favorable price. The tomato crop is highly perishable. Because of this, once tomatoes have reached a marketable condition the length of time that they can be kept before reaching the consumer is limited.

The production phases of the crop require large amounts of labor, material inputs, as well as certain services and equipment. The timing of these inputs is important to achieve high yields.

Tomato prices are not guaranteed and they fluctuate from day to day according to supply and demand. Competition from imported tomatoes, both from outside of Canada, and for eastern Ontario growers — from other producing areas in Ontario — often has an adverse effect on the prices of locally grown tomatoes. Southern Ontario growers are also faced by competition from sales of early maturing processing tomatoes that ripen and are sold on the fresh market before processing factories are open. Greenhouse vegetable growers near Leamington and other areas of southern Ontario have lengthened their growing season. For example, no greenhouse tomatoes were marketed in August of 1976, while 12 percent of the crop was marketed in August of 1982. Therefore, these greenhouse grown tomatoes are moved into the market in competition with fresh-market field grown ones.

Because of these adversities, the fresh-market grower has adapted new cultural practices and improved varieties, and used new marketing

Table 4.—Fresh-Market Tomato Costs and Returns, Southern and Eastern Ontario, 1982

Item	Southern Ontario	Eastern Ontario
Number of farms	5	7
Hectares grown per farm	1.24	.68
Per hectare:		
Yield, kilograms	30 834	15 262
Labor hours	1 141	462
Tractor hours	70	79.5
	dollars	
Per hectare:		
Gross returns	12,519	8,411
Operating costs	9,350	3,640
Gross margin	3,169	4,771
Fixed Costs	3,281	2,904
Measurable costs	12,631	6,544
Net returns	-112	1,867
Per kilogram:		
Gross returns	.41	.55
Operating costs	.30	.24
Gross margin	.11	.31
Fixed costs	.11	.19
Measurable costs	.41	.43
Net returns	--	.12

NOTE: Container size conversions:

11 qt. basket = 9.1 kilograms
6 qt. basket = 5.0 kilograms
4 qt. basket = 3.2 kilograms
4 qt. master = 12.7 kilograms

-- less than one unit.

practices. Growers on average, in both study areas, obtained a favorable gross margin,[1] yet only two out of five of the southern Ontario growers on study had net returns on the plus side. In comparison, only one of the seven growers in eastern Ontario showed a negative net return in their fresh market tomato operations.

While the southern Ontario yield at 30 834 kilograms per hectare was double that for eastern Ontario, it was also well above the five-year average (1977-81) yield of 22 599 kilograms for southern Ontario (Table 1). The eastern Ontario yield of 15 262 kilograms was above the 1977-81 average of 13 295 kilograms per hectare for that area. Several cooperating growers in the Eastern area reported that their yields would have

[1] Gross margin is the amount over operating costs that the fresh-market tomato crop contributes to the operator for his wages and management, and to the costs of owning machinery and land.

Table 5.—Measurable Costs per Hectare for Producing Fresh-Market Tomatoes, Southern and Eastern Ontario, 1982

Item	Southern Ontario		Eastern Ontario	
	Dollars	% of total	Dollars	% of total
Labor:				
Op. & unpaid family, fixed	1,816.94	15	1,840.16	28
Hired, oprtg.	3,553.51	28	1,444.44	22
Total	5,370.45	43	3,284.60	50
Tractor:				
Fixed	253.43	2	258.76	4
Operating	253.43	2	258.75	4
Total	506.86	4	517.51	8
Machines & trucks:				
Fixed	283.07	2	366.48	6
Operating	94.36	1	122.16	2
Total	377.43	3	488.64	8
Custom & machine rent, oprtg. ...	57.80	--	16.84	--
Materials, oprtg.:				
Seed and/or plants	208.13	2	215.38	3
Fertilizer	381.86	3	220.30	4
Sprays	184.31	1	106.97	2
Heat & hudro, grow plants	306.78	2	83.37	1
Soil, grow plants	165.10	1	20.21	--
Containers	3,204.43	26	431.12	7
Other, manure, plastic, etc. ..	29.23	--	224.11	4
Total	4,479.84	35	1,301.46	21
Land use, fixed:				
Interest on investment	437.36	4	223.05	3
Taxes	23.31	--	36.11	--
Rent	48.47	--	-	-
Total	509.14	4	259.16	3
Other costs:				
Overhead, fixed	418.54	3	179.25	3
Marketing, oprtg.	205.76	2	59.80	1
Int. on oprtg. cap., oprtg. ...	79.00	1	48.13	--
Management allow., oprtg.	625.94	5	388.95	6
Total	1,329.24	11	676.13	10
TOTAL COSTS:				
Operating	9,349.64	74	3,640.53	56
Fixed	3,281.12	26	2,903.81	44
TOTAL COSTS PER HECTARE	12,630.76	100	6,544.34	100

been higher except for frost damage. On average, southern Ontario growers nearly broke even on tomatoes. Net returns showed a loss of $112 per hectare. When expressed per kilogram the loss is negligible (Table 4).

Table 6.—Measurable Costs per Kilogram for Producing Fresh-Market Tomatoes, Southern and Eastern Ontario, 1982

Item	Southern Ontario	Eastern Ontario
	cents per kilogram	
Labor:		
Operator & unpaid family, fixed	6.0	12.0
Hired, operating	12.0	10.0
Total	18.0	22.0
Tractor:		
Fixed	1.0	1.5
Operating	1.0	1.5
Total	2.0	3.0
Machines & trucks:		
Fixed	1.0	2.0
Operating	--	1.0
Total	1.0	3.0
Custom & machine rent, operating	--	--
Materials, operating:		
Seed and/or plants	1.0	1.0
Fertilizer	1.0	1.0
Sprays	.5	1.0
Heat & hydro, grow plants	1.0	--
Soil, grow plants	--	--
Containers	10.0	3.0
Other, manure, plastic, etc.	1.0	2.0
Total	14.5	8.0
Land use, fixed:		
Interest on investment	2.0	1.5
Taxes	--	.5
Rent	--	-
Total	2.0	2.0
Other costs:		
Overhead, fixed	1.0	1.5
Marketing, operating	.5	.5
Interest on operating capital, operating	--	--
Management allowance, operating	2.0	3.0
Total	3.5	5.0
TOTAL COSTS:		
Operating	30.0	24.0
Fixed	11.0	19.0
TOTAL COSTS PER KILOGRAM	41.0	43.0

Therefore, the returns of $12,519 per hectare from the sale of tomatoes in southern Ontario covered all the operating costs of production, as well as wages for the operator and any unpaid family labor, provided a management allowance and covered the cost of machine and land ownership (Table 4). In eastern Ontario, the net return above all measurable costs (both operating and fixed) was $1,867 per hectare (Table 4).

PRODUCTION COSTS

In the operation of any farm there are joint costs which must be allocated among the different enterprises on the farm. All of these costs, both operating and fixed, which were possible to determine, have been included in total fresh-market tomato production costs for both study areas.

The operating costs in this report are those which are paid for in cash and are specifically used for the tomato crop. Operating costs consisted of seed, plants, fertilizer, sprays, containers, plant growing materials, hired labor, interest on operating capital, miscellaneous costs, management allowance, applicable repairs, maintenance labor, fuel, grease, and oil for the operations of tractors, machinery, and trucks. Fixed costs include operator and unpaid family labor, interest on investment in land, tractors, and machinery, depreciation on tractors and machinery, overhead for use of buildings and specialized equipment. Both farm taxes and/or rent were included as fixed costs. Operating and fixed costs of all inputs are shown in Tables 5 and 6.

In the southern Ontario area, the operating costs of tomato production amounted to 74 percent of total costs. Major cost inputs were for hired labor, $3,554 per hectare, or 28 percent of total; and for containers, $3,204 per hectare, or 26 percent of total (Tables 5 and 6).

In the eastern Ontario area, operating costs were 56 percent of total costs. Major components were hired labor, $1,840 per hectare, or 22 percent of total costs, with containers being only $431 per hectare, or 7 percent of total costs (Tables 5 and 6).

LABOR USE AND COSTS

While southern Ontario growers depended more on hired labor than the Eastern area, both areas used about the same amount of operator and unpaid family labor (Tables 5 and 8).

Labor is the most important cost input in fresh-market tomato production. Hired, operator and unpaid family labor at $5,370 per hectare in southern Ontario and $3,285 per hectare in eastern Ontario accounted for 43 and 50 percent respectively of total production costs (Table 5).

When the labor use for both areas is brought to a common unit, such as hours per 100 kilograms of tomatoes marketed, southern Ontario growers used 3.7 hours, and eastern Ontario growers used 3.0 hours. Similarly, labor costs per 100 kilograms marketed is $17.42 for southern Ontario, and $21.52 for eastern Ontario.

Gross returns per hour of labor is $10.97 for the Southern area, and $18.21 for eastern Ontario.

Southern Ontario growers spent 766 hours per hectare, or 67 percent of their labor hours to pick, grade, and market the tomato crop. This amounted to a cost of $11.37 per 100 kilograms, or 11.4 cents per kilogram, which is 28 percent of total production costs of 41 cents per kilogram (Tables 4, 7, and 8).

Table 7.—Production Costs per Hectare for Fresh-Market Tomatoes, by Operation, Southern and Eastern Ontario, 1982

Item	Southern Ontario	Eastern Ontario
	dollars per hectare	
PREHARVEST OPERATIONS		
Plant growing:		
Labor	429.97	733.68
Materials	573.85	168.22
Greenhouse use	390.27	179.25
Total	1,394.09	1,081.15
Field preparation:		
Labor	51.37	99.59
Tractor	61.89	147.68
Machines & trucks	17.13	25.30
Materials	187.42	217.61
Custom & rentals	9.85	16.84
Total	327.66	507.02
Planting:		
Labor	363.91	281.41
Tractor	83.40	87.64
Machines & trucks	25.30	20.69
Materials	161.72	322.88
Other	26.66	-
Total	660.99	712.62
Summer:		
Labor	1,017.85	441.13
Tractor	96.31	144.88
Machines & trucks	103.46	176.15
Materials	352.42	172.15
Other	47.95	-
Total	1,617.99	934.31
TOTAL PREHARVEST	4,000.73	3,235.10
Harvesting:		
Labor	3,458.88	1,080.44
Tractor	265.26	137.31
Machines & trucks	116.79	35.28
Other	1.61	-
Total	3,842.54	1,253.03
Marketing:		
Labor	48.48	648.35
Machines & trucks	114.75	231.22
Materials	3,204.43	420.60
Other	205.76	59.80
Total	3,573.42	1,359.97
Other costs:		
Land use	509.14	259.16
Interest on operating capital	79.00	48.13
Management allowance	625.94	388.95
Total	1,214.08	696.24
TOTAL COSTS PER HECTARE	12,630.77	6,544.34

Table 8.—Labor Hours Used in Fresh-Market Tomato Production, Southern and Eastern Ontario, 1982

Item	Southern Ontario		Eastern Ontario	
	Family	Hired	Family	Hired
	hours per hectare			
Preharvest:				
Greenhouse, growing plants	58.0	19.0	99.0	11.0
Field preparation	7.0	2.0	14.5	.5
Planting	24.0	44.0	29.0	20.5
Summer operations	26.0	195.0	23.5	58.0
Total	115.0	260.0	166.0	90.0
Harvesting	167.0	591.0	14.0	86.0
Marketing	8.0	-	98.0	8.0
TOTAL, ALL LABOR HOURS	1141.0		462.0	

Eastern Ontario growers spent 206 hours per hectare, or 51 percent of their labor hours to pick, grade, and market their tomato crops. This amounted to a cost of $11.33 per 100 kilograms, or 11.3 cents per kilogram which is 26 percent of total production costs of 43 cents per kilogram (Tables 4, 7, and 8).

PRODUCTION COSTS BY SEASON

The seasonal costs of fresh-market tomato production include those costs incurred in growing (preharvest), harvesting, and marketing. Growing or preharvest costs can be divided into plant growing, field preparation, planting and summer (weed controlling, and pesticide applying) operations. With each of these operations are costs for labor, tractor, machines, trucks, custom and rentals, materials, and other costs.

Harvesting operations include all labor, tractor, machines and trucks used to pick and haul the crop from field to farm yard. In many cases it was difficult to separate out picking labor from that used for grading and packing. Marketing costs include all labor, machines and trucks, or custom hauling used to move the crop to market. All containers used in marketing the crop were included in marketing costs.

On a percentage basis, costs allocated to seasons or operations amounted to $11,417 per hectare for the Southern area, and $5,848 per hectare for the Eastern area, both 90 percent of total production costs (Table 7).

Preharvest costs in the Southern area were $4,001 per hectare, amounting to 32 percent of total production costs. For eastern Ontario, preharvest costs of $3,235 per hectare were 49 percent of all costs and 55 percent of seasonal costs (Table 7).

Table 9.—Tractor Hours Used in Fresh-Market Tomato Production, Southern and Eastern Ontario, 1982

Item	Southern Ontario	Eastern Ontario
	hours per hectare	
Preharvest:		
Greenhouse, growing plants	-	-
Field preparation	7	15.0
Planting	10	14.5
Summer operations	16	20.0
Total	33	49.5
Harvesting	37	30.0
Marketing	-	-
TOTAL TRACTOR HOURS	70	79.5

PRACTICES USED BY GROWERS ON STUDY

PLANT GROWING

Most growers produce their own plants, usually not because it is less expensive to do so, but to obtain varieties suited to their needs at a time when they are needed for planting. In southern Ontario for those four out of five growers who produced their own tomato plants, the cost amounted to $1,482 per hectare or $72.16 per 1,000 plants used.

In eastern Ontario for those five out seven growers who provided information on their tomato plant growing costs, the costs were $1,104 per hectare of crop grown or $98.80 per 1,000 plants used. While these plant growing costs seem high in relation to the cost of purchased plants, it must be remembered that all growers have greenhouses, or other facilities and labor available for use in their vegetable operations. In most cases, the only added cost would be for materials such as seed, heating fuel, fertilizer, and sprays to keep the plants healthy. On this basis, material costs were $24.27 per 1,000 plants used in southern Ontario and $15.37 per 1,000 for the Eastern area.

FERTILIZER PRACTICES

An adequate amount of fertilizer is important for producing a high-yielding good quality tomato crop. The accepted practice is to follow the recommendations of a soil test for use of phosphate (P_2O_5) and potash (K_2O). The soil test recommendation for medium rating is for 140 kilograms of phosphate and 100 kilograms of potash per hectare. The application of nitrogen varies, with a general recommendation being 100 kilograms per hectare at or before planting. Side-dress with an additional 35 kilograms per hectare after first fruit is set and every two to three weeks thereafter if foliage is healthy and soil moisture adequate.[1]

[1] Publication 363, *1983 Vegetable Production Recommendations*, Ontario Ministry of Agriculture and Food, December 1982.

Table 10.—Fertilizer Use in Fresh-Market Tomato Production, Southern and Eastern Ontario, 1982

Item	No. farms	Fertilizer		Nutrients			
		$	kg	N	P	K	Total
SOUTHERN ONTARIO		per ha		kg per ha			
Seedbed:							
Using fertilizer	3	188	709	64	145	160	369
All farms on study	5	157	593	54	121	134	497
Planting:							
Using fertilizer	1	160	617	210	-	-	210
All farms on study	5	21	81	27	-	-	27
Side-dress:							
Using fertilizer	4	306	1144	155	200	200	555
All farms on study	5	176	658	89	115	115	319
ALL FERTILIZER APPLIED[a]	5	354	1332	171	236	248	826
EASTERN ONTARIO							
Seedbed:							
Using fertilizer	6	172	615	72	88	115	275
All farms on study	7	121	432	50	62	81	193
Planting, none applied	-	-	-	-	-	-	-
Side-dress:							
Using fertilizer	4	87	256	33	33	30	96
All farms on study	7	82	239	31	31	28	90
ALL FERTILIZER APPLIED[a]	7	203	672	80	93	108	281

[a]Does not include plant starter and fertilizer used in greenhouses to grow plants.

The average amount of fertilizer applied by the five southern Ontario tomato growers on study was 1332 kilograms per hectare. This consisted of N = 171, P = 236, and K = 248 kilograms. These amounts of fertilizer applied were adequate according to recommendations (Table 10).

The seven eastern Ontario tomato growers on study applied a total of 672 kilograms of fertilizer per hectare. This amount gave the following quantities of nutrients per hectare: N = 80, P = 93, and K = 108 kilograms (Table 10).

Four out of the five growers on study in southern Ontario used a plant starter at the time of field transplanting at a cost of $25.79 per hectare. None of the eastern Ontario growers reported the use of plant starter fertilizer at field transplanting.

Table 11.—Chemical Spraying Practices Used in Fresh-Market Tomato Production, Southern and Eastern Ontario, 1982

Item	Southern Ontario		Eastern Ontario	
	Farms	Material[a]	Farms	Material
SPRAYING OPERATIONS	no.	$/ha	no.	$/ha
Weed control:				
Using sprays	4	31.63	3	98.92
All farms on study	5	29.54	7	35.82
Insect control:				
Using sprays	4	99.02	2	16.90
All farms on study	5	79.66	7	4.30
Disease control:				
Using sprays	5	120.71	7	66.85
All farms on study	5	120.71	7	66.85
ALL SPRAYS, all farms on study	5	229.91	7	106.97

[a]One farm had insect and disease sprays custom applied, with application and material costs combined.

SPRAYING PRACTICES

Good cultural practices involve the proper use of chemical sprays available to control weeds, diseases and insects that affect the tomato crop. In the Southern area, four out of five growers on study used a weed spray at an average cost of $31.63 per hectare. The Eastern area showed that only three out of seven growers used a weed spray. Their costs were much higher at $98.92 per hectare (Table 11). This higher cost was because one grower had a particular weed infestation necessitating the use of added amounts of spray.

Again, four out of five Southern area growers applied insect sprays to their tomato crops at an average cost of $99.02 per hectare. Eastern Ontario growers on study did not report a heavy use of insect sprays with only two out seven growers spraying for an average cost of $16.90 per hectare (Table 11).

All tomato growers on study from both areas reported the use of disease controlling sprays with the southern Ontario average cost at $120.71 per hectare, and eastern Ontario at $66.85 per hectare (Table 11). Southern Ontario growers are more conscious of the threat of disease outbreaks because of large acreages of fresh and processing tomatoes in the immediate areas. Therefore, most growers on study in the Southern area tended to follow a recommended spray program for controlling tomato diseases.

PICKING AND PACKING PRACTICES

Picking- and especially packing-labor use and costs depend on the type of markets serviced. Most growers in the southern Ontario area pick

and pack their tomatoes for shipment out of the area—usually to the Food Terminal in Toronto. In contrast, those growers on study in eastern Ontario marketed all of their tomatoes within their local area. Three out of seven growers on study marketed their tomatoes through rented stalls on the Ottawa city market. The other four growers marketed their crop through pick-your-own, at-the-farm sales, and deliveries to retail outlets within the immediate area.

Four out of five growers on study in the Southern area were able to separate out their picking and packing labor hours. For these growers, picking labor use ranged from 1.3 hours to 3.2 hours per 100 kilograms picked with an average of 1.9 hours per 100 kilograms. The time spent packing varied slightly within a range of .6 to .8 hours per 100 kilograms with an average of .7 hours.

Those growers on study in eastern Ontario, due to the type of market serviced, were not able to provide separate hours on time spent picking and packing tomatoes.

FRESH-MARKET CABBAGE COSTS AND RETURNS IN SOUTHERN ONTARIO

While the information in this study deals mainly with growers of early market cabbage, there are many growers in Ontario who produce mid- and late-season cabbage for the fresh market. Some of the late-season cabbage growers place cabbage into storage for sale in the late winter period. The growing costs for this type of producer will be little different from the early market cabbage grower, but he will be faced with storage costs, loss, and added trimming costs at market time.

YIELDS AND RETURNS

If the yield marketed of 1488 crates per hectare is converted to kilograms at 18.14 kilograms per crate, the resulting yield is 26 992 kilograms per hectare. This is well below the 5-year average (1977-81) of 41 198 kilograms per hectare for the area (Table 2). Due to an unusually strong market demand for early cabbage in 1982, the gross returns received of $8,151 per hectare were well above the 5-year average of $5,062 (Table 2).

Gross margin amounted to $3,802 per hectare above the operating costs of $4,349. Net returns above all costs (operating and fixed) amounted to $2,202 per hectare (Table 12).

Early market cabbage growers must carefully consider the *ups and downs* of the market before they make their growing commitments each year. For example, all cabbage marketed in the southern area of Ontario for the years 1977 to 1981 showed considerable fluctuation in prices, from a low of 8.8 cents per kilogram in 1977, to a high of 16.1 cents in 1980 (Table 2).

Table 12.—Fresh-Market Cabbage Costs and Returns, Southern Ontario, 1982

Item	Southern Ontario
Number of farms	8
Hectares grown per farm	3.3
Per hectare:	
Yield, crates	1,488
Labor hours	273.5
Tractor hours	33.5
Per hectare:	dollars
Gross returns	8,151
Operating costs	4,349
Gross margin	3,802
Fixed costs	1,600
Measurable costs	5,949
Net returns	2,202
Per crate:	
Gross returns	5.48
Operating costs	2.92
Gross margin	2.56
Fixed costs	1.08
Measurable costs	4.00
Net returns	1.48

PRODUCTION COSTS

The operating costs of cabbage production in southern Ontario amounted to 73 percent of total costs per hectare of $5,949 per hectare, or $4.00 per crate (Tables 13 and 14). Major operating cost inputs were hired labor $917 per hectare or 16 percent of total, and materials $1,827 per hectare or 30 percent of total. The cost of crates at $973 per hectare or 16 percent, is an important cost consideration (Table 13).

Important fixed cost inputs were land charges $597 per hectare or 10 percent of total costs, and the combined ownership costs for tractors, machines and trucks at $593 per hectare or 10 percent of total costs. The major remaining fixed cost input of operator and unpaid family labor accounted for 7 percent — $405 per hectare — of the total fixed costs of $1,600 per hectare or 27 percent of all costs for producing cabbage (Table 13).

PRODUCTION COSTS BY SEASON

The seasonal costs of fresh-market cabbage production include those costs incurred in growing (preharvest), harvesting, and marketing. Growing or preharvest costs can be divided into plant growing, field preparation, planting, and summer operations.

Table 13.—Measurable Costs per Hectare for Producing Fresh-Market Cabbage, Southern Ontario, 1982

Item	Southern Ontario	
	Dollars	% of total
Labor:		
Operator & unpaid family, fixed	405.12	7
Hired, operating	916.77	16
Total	1,321.89	23
Tractor:		
Fixed	196.66	3
Operating	196.65	3
Total	393.31	6
Machines & trucks:		
Fixed	395.99	7
Operating	132.00	2
Total	527.99	9
Custom & machine rent, operating	28.56	1
Materials, operating:		
Seed and/or plants	372.81	6
Fertilizer	310.19	5
Sprays	128.65	2
Heat & hydro, grow plants	15.15	--
Soil, grow plants	27.95	1
Containers	972.61	16
Total	1,827.36	30
Land use, fixed:		
Interest on investment	558.72	9
Taxes	30.07	1
Rent	8.52	--
Total	597.31	10
Other costs:		
Crop insurance, operating	24.47	--
Overhead, fixed	5.35	--
Marketing, operating	764.73	13
Interest on operating capital, operating	50.61	1
Management allowance, operating	407.56	7
Total	1,252.72	21
TOTAL COSTS:		
Operating	4,348.71	73
Fixed	1,600.43	27
TOTAL COSTS PER HECTARE	5,949.14	100

Harvesting operations include labor, tractor, machines, and trucks used in cutting the cabbage and hauling it to the farm yard. In most cases, the cabbage was cut, trimmed, and placed in crates in the field. Some growers shipped their cabbage to market outlets in bulk bins.

Table 14.—Measurable Costs per Crate for Producing Fresh-Market Cabbage, Southern Ontario, 1982

Item	Southern Ontario
	$/crate
Labor:	
Operator & unpaid family, fixed	.27
Hired, operating	.62
Total	.89
Tractor:	
Fixed	.13
Operating	.13
Total	.26
Machines & trucks:	
Fixed	.27
Operating	.09
Total	.36
Custom & machine rent, operating	.02
Materials, operating:	
Seed and/or plants	.25
Fertilizer	.21
Sprays	.09
Heat & hydro, grow plants	.01
Soil, grow plants	.02
Containers	.65
Total	1.23
Land use, fixed:	
Interest on investment	.37
Taxes	.02
Rent	.01
Total	.40
Other costs:	
Crop insurance, operating	.02
Overhead, fixed	.01
Marketing, operating	.51
Interest on operating capital, operating	.03
Management allowance, operating	.27
Total	.84
TOTAL COSTS:	
Operating	2.92
Fixed	1.08
TOTAL COSTS PER CRATE (Average heads per crate 16)	4.00

Marketing costs included all labor, machines and trucks, and marketing charges used in moving the crop to market. All containers used in marketing the crop were included in marketing costs. All costs allocated to production of the cabbage crop by operation were $4,869 per hectare, or 82 percent of the total measurable costs of $5,949 per hectare (Table 15).

Table 15.—Production Costs per Hectare for Fresh-Market Cabbage, by Operation, Southern Ontario, 1982

Item	Southern Ontario
PREHARVEST OPERATIONS	
Plant growing:	$/ha
Labor	62.32
Materials	27.16
Tractors	1.79
Machines	.48
Other	5.35
Total	97.10
Field preparation:	
Labor	15.55
Tractors	32.18
Machines & trucks	14.00
Materials	166.35
Other	28.56
Total	256.64
Planting:	
Labor	152.08
Tractors	66.86
Machines & trucks	28.57
Materials	387.22
Total	634.73
Summer:	
Labor	196.03
Tractors	87.59
Machines & trucks	108.70
Materials	249.78
Total	642.10
TOTAL PREHARVEST	1,630.57
Harvesting:	
Labor	680.52
Tractors	204.89
Machines & trucks	78.19
Total	963.60
Marketing:	
Labor	215.39
Machines & trucks	298.05
Materials	996.85
Other	764.73
Total	2,275.02
TOTAL OPERATION COSTS	4,869.19
Other costs:	
Land use	597.31
Crop insurance	24.47
Interest on operating capital	50.61
Management allowance	407.56
Total	1,079.95
TOTAL COSTS PER HECTARE	5,949.14

Table 16.—Labor Hours Used in Fresh-Market Cabbage Production, Southern Ontario, 1982

Item	Southern Ontario	
	Family	Hired
	hours/ha	
Preharvest:		
Greenhouse, growing plants[a]	2.0	12.0
Field preparation	2.0	1.0
Planting	6.0	27.0
Summer operations	7.0	34.0
Total	17.0	74.0
Harvesting	21.5	124.0
Marketing	26.0	11.0
TOTAL, ALL LABOR HOURS	273.5	

[a]Only 2 out of 8 growers grew their own plants.

Table 17.—Tractor Hours Used in Fresh-Market Cabbage Production, Southern Ontario, 1982

Item	Southern Ontario
	hours/ha
Preharvest:	
Greenhouse, growing plants	-
Field preparation	3
Planting	5
Summer operations	10
Total	18
Harvesting	16
Marketing	-
TOTAL TRACTOR HOURS	34

Preharvest costs were $1,631 per hectare or 27 percent of total costs, and 35 percent of all allocated operational costs. Harvesting costs of $964, and marketing costs of $2,275 per hectare together amounted to 54 percent of total costs, or 66 percent of total allocated costs (Table 15).

LABOR AND TRACTOR USE

Southern Ontario fresh-market cabbage growers used 273.5 hours of labor to grow, harvest, and market each hectare of cabbage. Of this, 209 hours per hectare or 76 percent of the total amount was hired labor (Table 16).

The eight cabbage growers averaged 182.5 hours per hectare (8.2 crates were harvested and delivered to market for each hour of labor used) for harvesting and marketing operations (Tables 12 and 16).

While not a major cost for components of fresh-market cabbage production, tractor hours are required preparing the land, planting, and for summer spraying and weed controlling measures. Some growers used their tractor to pick up crates in the field for hauling to the farmyard. Total tractor use amounted to 34 hours per hectare, and was about evenly distributed between 18 hours for preharvest, and 16 for harvesting (Table 17).

FRESH-MARKET CAULIFLOWER COSTS AND RETURNS IN EASTERN ONTARIO

The information on fresh-market cauliflower production costs and returns for eastern Ontario deals with five growers who marketed their crop within the local area. Four out of the five growers marketed the bulk of their crop through rented stalls on the Ottawa city market. The remaining grower marketed the crop through a roadside market and local produce outlets.

YIELDS AND RETURNS

The yield was measured in the unit of sale at 8450 heads per hectare. Even at a conversion factor of one kilogram per head the yield is not particularly good, considering the 1977-81 average yield is reported at 16 120 kilograms per hectare for eastern Ontario (Table 3).

While returns were good at $6,368 per hectare, most growers on study reported that they were not able to market all cauliflower produced. The average returns obtained were above the five-year area average of $5,672 per hectare (Table 3).

Gross margin amounted to $4,173 per hectare above the operating costs of $2,195. Net returns above all costs (operating and fixed) amounted to $2,133 per hectare (Table 18).

PRODUCTION COSTS

In the eastern area of Ontario, the operating costs of producing cauliflower amounted to 52 percent of total costs of $4,235 per hectare or 27 cents per head (Tables 19 and 20).

Major operating cost inputs were hired labor $983 per hectare or 23 percent of total costs, and materials $549 per hectare or 13 percent of total costs (Table 19).

Table 18.—Fresh-Market Cauliflower Costs and Returns, Eastern Ontario, 1982

Item	Eastern Ontario
Number of farms	5
Hectares grown per farm	1.8
Per hectare:	
Yield, heads	8,450
Labor hours	450
Tractor hours	56
	dollars
Per hectare:	
Gross returns	6,368
Operating costs	2,195
Gross margin	4,173
Fixed costs	2,040
Measurable costs	4,235
Net returns	2,133
Per head:	
Gross returns	.75
Operating costs	.27
Gross margin	.48
Fixed costs	.23
Measurable costs	.50
Net returns	.25

Important fixed cost inputs were unpaid family and operator labor of $1,427 per hectare or 34 percent of total costs, and land use charges of $195 per hectare or 5 percent of total costs.

The share of operating and fixed costs for these cauliflower growers in eastern Ontario depended on the proportion of either hired or operator and unpaid family labor used to grow, harvest, and market the crop. A large percentage of the marketing labor — 171 hours or $1,023 per hectare — consisted of family help used to sell the crop mainly through a market stall at the Ottawa city market. This $1,023 per hectare amounted to 24 percent of total costs (Table 19). While this marketing labor is a necessary part of this type of vegetable growing operation, it is an allowance for family help with the cost not being paid out as a direct cash expense either to hired help or to a selling agent.

PRODUCTION COSTS BY SEASON

All costs allocated to the production of the cauliflower crop by operation were $3,695 per hectare or 87 percent of total production costs of $4,235 per hectare (Table 21).

Preharvest costs were $1,608 per hectare or 38 percent of total costs and 44 percent of total allocated operating costs. These preharvest

Table 19.—Measurable Costs per Hectare for Producing Fresh-Market Cauliflower, Eastern Ontario, 1982

Item	Eastern Ontario	
	Dollars	% of total
Labor:		
Operator & unpaid family, fixed	1,427.36	34.0
Hired, operating	982.87	23.0
Total	2,410.23	57.0
Tractor:		
Fixed	169.35	4.0
Operating	169.35	4.0
Total	338.70	8.0
Machines & trucks:		
Fixed	212.60	5.0
Operating	70.86	1.5
Total	283.46	6.5
Materials, operating:		
Seed, grow plants	57.02	1.0
Fertilizer	239.98	6.0
Sprays	50.88	1.0
Heat & hydro, grow plants	5.49	.5
Soil, grow plants	24.70	.5
Tying twine	46.71	1.0
Containers	124.65	3.0
Total	549.43	13.0
Land use, fixed:		
Interest on investment	153.75	4.0
Taxes	26.22	.5
Rent	14.70	.5
Total	194.67	5.0
Other costs:		
Overhead, fixed	35.58	.5
Marketing, operating	77.68	1.5
Interest on operating capital, operating	26.81	.5
Management allowance, operating	318.41	8.0
Total	458.48	10.5
TOTAL COSTS:		
Operating	2,195.41	51.5
Fixed	2,039.56	48.5
TOTAL COSTS PER HECTARE	4,234.97	100.0

costs per hectare of $1,608 are similar in total to the preharvest costs of $1,631 per hectare for cabbage production in southern Ontario (Tables 15 and 21). These costs should be similar as both cabbage and cauliflower are produced under like cultural practices. The major difference would be the cost and time involved to tie the cauliflower heads.

Table 20.—Measurable Costs per Head for Producing Fresh-Market Cauliflower, Eastern Ontario, 1982

Item	Eastern Ontario
	¢/head
Labor:	
Operator & unpaid family, fixed	17.0
Hired, operating	12.0
Total	29.0
Tractor:	
Fixed	2.0
Operating	2.0
Total	4.0
Machines & trucks:	
Fixed	2.0
Operating	1.0
Total	3.0
Materials, operating:	
Seed, grow plants	1.0
Fertilizer	3.0
Sprays	1.0
Heat & hydro, grow plants	.5
Soil, grow plants	.5
Tying twine	.5
Containers	.5
Total	7.0
Land use, fixed:	
Interest on investment	1.0
Taxes	.5
Rent	.5
Total	2.0
Other costs:	
Overhead, fixed	1.0
Marketing, operating	.5
Interest on operating capital, operating	.5
Management allowance, operating	3.0
Total	5.0
TOTAL COSTS:	
Operating	26.0
Fixed	24.0
TOTAL COSTS PER HEAD	50.0

Harvesting costs of $609 and marketing costs of $1,478 per hectare amounted to 49 percent of total costs or 56 percent of total allocated costs per hectare (Table 21).

Table 21.—Production Costs per Hectare for Fresh-Market Cauliflower, by Operation, Eastern Ontario, 1982

	Eastern Ontario
PREHARVEST OPERATIONS	
Plant growing:	$/ha
Labor	127.08
Materials	95.13
Machines	.22
Greenhouse use	35.58
Total	258.01
Field preparation:	
Labor	32.98
Tractor	62.04
Machines & trucks	8.94
Materials	150.54
Total	254.50
Planting:	
Labor	201.11
Tractor	67.71
Machines & trucks	12.10
Materials	8.48
Total	289.40
Summer:	
Labor	509.94
Tractor	93.47
Machines & trucks	32.10
Materials	170.62
Total	806.13
TOTAL PREHARVEST COSTS	1,608.04
Harvesting:	
Labor	476.95
Tractor	115.48
Machines & trucks	16.33
Total	608.76
Marketing:	
Labor	1,062.17
Machines & trucks	213.77
Materials	124.66
Other	77.68
Total	1,478.28
TOTAL OPERATION COSTS	3,695.08
Other costs:	
Land use	194.67
Interest on operating capital	26.81
Management allowance	318.41
Total	539.89
TOTAL COSTS PER HECTARE	4,234.97

Table 22.—Labor Hours Used in Fresh-Market Cauliflower Production, Eastern Ontario, 1982

Item	Eastern Ontario	
	Family	Hired
	hours per ha	
Preharvest:		
Greenhouse, growing plants[a]	17	5
Field preparation	5	-
Planting	13	27
Summer operations	18	86
Total	53	118
Harvesting	11	89
Marketing	171	8
TOTAL, ALL LABOR HOURS	450	

[a]All five cooperating growers grew their own plants.

Table 23.—Tractor Hours Used in Fresh-Market Cauliflower Production, Eastern Ontario, 1982

	Eastern Ontario
	hrs/ha
Preharvest:	
Greenhouse, growing plants	-
Field preparation	5
Planting	12
Summer operations	17
Total	34
Harvesting	22
Marketing	-
TOTAL TRACTOR HOURS	56

LABOR AND TRACTOR USE

Eastern Ontario fresh-market cauliflower growers used 450 hours of labor to grow, harvest, and market each hectare of cauliflower. Of this, 214 hours per hectare or 48 percent of the total amount was hired labor (Table 22).

The five cauliflower growers averaged 279 hours per hectare, or 30 heads marketed for each hour of labor used for harvesting and marketing operations (Table 22).

Tractor costs only amounted to 8 percent of total costs (Table 19). Tractor use was 56 hours per hectare, with 34 hours per hectare or 61 percent used in preharvest operations. Twenty-two hours or 39 percent, was used during harvesting operations (Table 23).

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POOR

QUALITY

ORIGINAL